KZESO IS 90!
(Interview with the head of PrJSC KZESO Mikitin Ya.I.)

This year we celebrate 90 years from the day of establishment of KZESO — acknowledged world leader in the field of creation and manufacture of suspended and stationary rail welding machines. In respect of a jubilee the editorial board initiated an interview with a Head of Board of Private Joint Stock Company «Kakhovka Plant of Electric Welding Equipment», Hero of Ukraine Mikitin Ya.I., which we believe will be interesting to the readers.

Yarosvav Ivanovych, please, tell how the plant was founded, what stages of its establishment and development can be outlined?

On September 1, 1929, Kakhovka Artisan-Industrial School (till 1914 it was a plant of agricultural equipment of merchant I. Gurevich), which provided training of the basics of metal and woodworking, manufactured and repaired different agricultural equipment, started on its territory commercial production of piston rings for tractor engines. We assume this date as a Plant's birthday.

In the beginning of the 1950th Kakhovka Plant «Avtotraktorodetal No.22» was renamed as Kakhovka Repair-Mechanical Plant and its activity came under the administration of «Dniprobud», which at that moment took part in construction of Kahovka HPP. At the same time, there was reconstruction of the enterprise following the set general plan, its area was expanded, engineering buildings, boiler house, storehouses were constructed, new lines were laid. The result of these reforms was increase of number of subdivisions, engineer specialists and the main thing was a real perspective of transformation of plant into multibusiness enterprise.

«Welding» history of KZESO has started from 1959, when by the initiative of B.E. Paton specialization of the Plant was changed and it started output of electric welding equipment. Was it a happy coincidence — choice of a small plant from Ukrainian province for manufacture of new welding equipment?

A life-changing for the Plant governmental decree No. 624 «On further implementation into production of welding engineering» was issued on July 5 (August 15) 1959 following a request of E.O. Paton Electric Welding Institute (PWI) and personally its Director B.E. Paton, who managed to see in a small machine-building enterprise on the South of Ukraine the potential for mastering new type of production. The Plant equipped by that time with novel production equipment, competent staff and oriented on implementation of modern technologies, was ready to become an area for fulfillment of governmental program on manufacture of welding equipment.

On January 1, 1960 Kakhovka Mechanical Plant was renamed as the Plant of Electric Welding Equipment. At that time, still Soviet enterprise started to demonstrate their products at international exhibitions, namely A482 automatic machine in Swedish city Goteborg, automatic device ABS with power supply in Dutch city Utrecht.

What did cooperation with PWI give to the Plant?

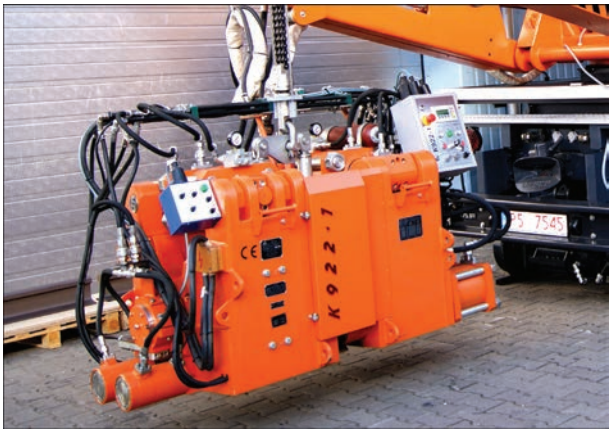
In January 1964 Kakhovka Plant of Electric Welding Equipment created a branch of research design —

technological bureau of PWI of the National Academy of Sciences of Ukraine. The main aim is to provide as soon as possible implementation into production of the achievements of science and technology, strengthen the connections of scientific and design organizations with production for successful mastering of new welding equipment. Created at that time powerful tandem of science and production became a starting point in modern success of KZESO. An engineering center was created at the Plant to mobilize engineering findings. Its work in tight cooperation with PWI (in particular, with department No.26 headed by Acad. of the NAS of Ukraine S.I. Kuchuk-Yatsenko) significantly reduced the terms necessary to realize technical ideas. The breakout to the world market was, first of all, possible due to the fact that we in proper time understood that in order to be competitive it is necessary to have modern science, qualified staff, first-rate ideas, novel technologies and well-equipped production.

Development of rail welding machines requires complex efforts in design, construction and creation of welding technology, etc. How did you manage to form a team for solution of such complex tasks? How do you attract youth to the Plant?

We always present our Plant as a high-tech enterprise that, certainly, stipulates presence of professional staff at each step of manufacture of welding equipment. Today, approximately 50 % of workers have professional technical education and almost 25 % are the specialists with higher education. This allows solving different technical problems; accept the challenges of continuous technological development. Our designers, technologists, engineers constantly improve their qualification level, master new programs for designing.

I would like to notice that a lot of family dynasties work at our enterprise. No matter how pathetic it may

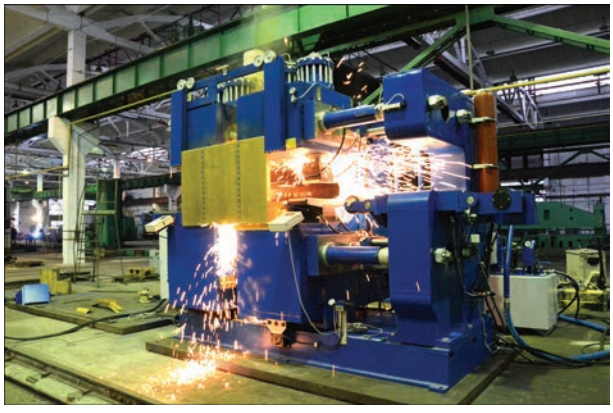


be, but experience of manufacture of welding equipment hands on from grandfathers to grandsons. Today, at the end of second decade of the XXI century, our veterans, started their carrier at Kakhovka Plant back in 1960th, have still been working together with young specialists.

How the Plant provide for the needs in labor and engineering force?

The enterprise has implemented the system for training of staff of almost all trade jobs. Experienced specialists explain theoretical material and practical lessons take place under conditions of real production. To get the specialists with higher education we send inquires to technical universities of our region. Besides, around 100 people graduated from higher education institutions by assignment from the enterprise.

Ukrainian rail welding machines of «KZESO» type work on 5 continents in more than 100 countries. What helps you long years to keep the leading positions in the world market? What tasks should be fulfilled due to activity of competitors from China and other countries and output of counterfeit goods?



Annual mastering of new and new types of welding equipment has become typical for the scientists of PWI and Kakhovka machine-building engineers. Up-to-date science and modern production created an inseparable tandem, which is the locomotive that leads the Plant to set aim, namely to be a leader in its field in the world market, not simply move with the requirements of times, but think long-term and pass ahead the competitors by a step or even two.

For the last decade we a lot of times faced with the examples of copying of our products, attempts to issue welding equipment under «KZESO» trademark at different territories. Of course, these are unpleasant moments, but our analysis of such cases shows that these counterfeit goods do not work at all or have totally low indices of efficiency and operation life. I feel sorry for such clients, which trying to save, or being led into confusion, buy counterfeit goods and very soon face with a lot of problems.

KZESO produced more than 3000 rail-welding machines, about 80 % of which were supplied abroad. When foreign deliveries began, who initiated them?

K922 machine, Chengdu, Shenzhen, China

The first deliveries abroad were made to France (1971), Japan, Austria (1973), Sweden, Poland, Czechoslovakia, Hungary, USA, Cuba, Romania (1975) and the PWI was the initiator of these deliveries.

How do you form a stock of orders and how wide is sales geography?

A stock of our orders is formed in different ways taking into account specifics of our products and terms of its manufacture. There are regular clients, with whom

it is enough to discuss volume of order and specification, because they work with us for decades and sure in quality of equipment and decency of fulfillment of contract terms from the enterprise side. Every year we have new clients, which necessarily come to Kakhovka, to see production facilities, personally discuss conditions of future contracts. We are happy about renewal of active cooperation with «Ukrzaliznytsia». If during the last 10 years the Plant has manufactured more than 90 % of welding machines and complexes to export in the countries of the far abroad, then now at last we started to get orders of equipment for construction and repair of Ukrainian rails.

K920 machine, Kuala-Lumpur, Malaysia

The enterprise has a marketing department, where young and progressive specialists analyze and study new markets and push forward our unique products in new directions. Certainly, we every year take part in international exhibitions and specialized events that also opens new possibilities for further development of KZESO. Wining confidence of customer and complete fulfillment of its needs and wishes is one of our principles in competition for leadership and stock of orders.

Welding machines of «KZESO» trademark work on all five continents, in more than 100 advanced countries of the world.

Which problems does the Plant face with in the epoch of 4th industrial revolution due to implementation of digital technologies in all spheres of activity? How do you imagine the direction of further development of rail welding machines?


K945 machine, Wales, Great Britain

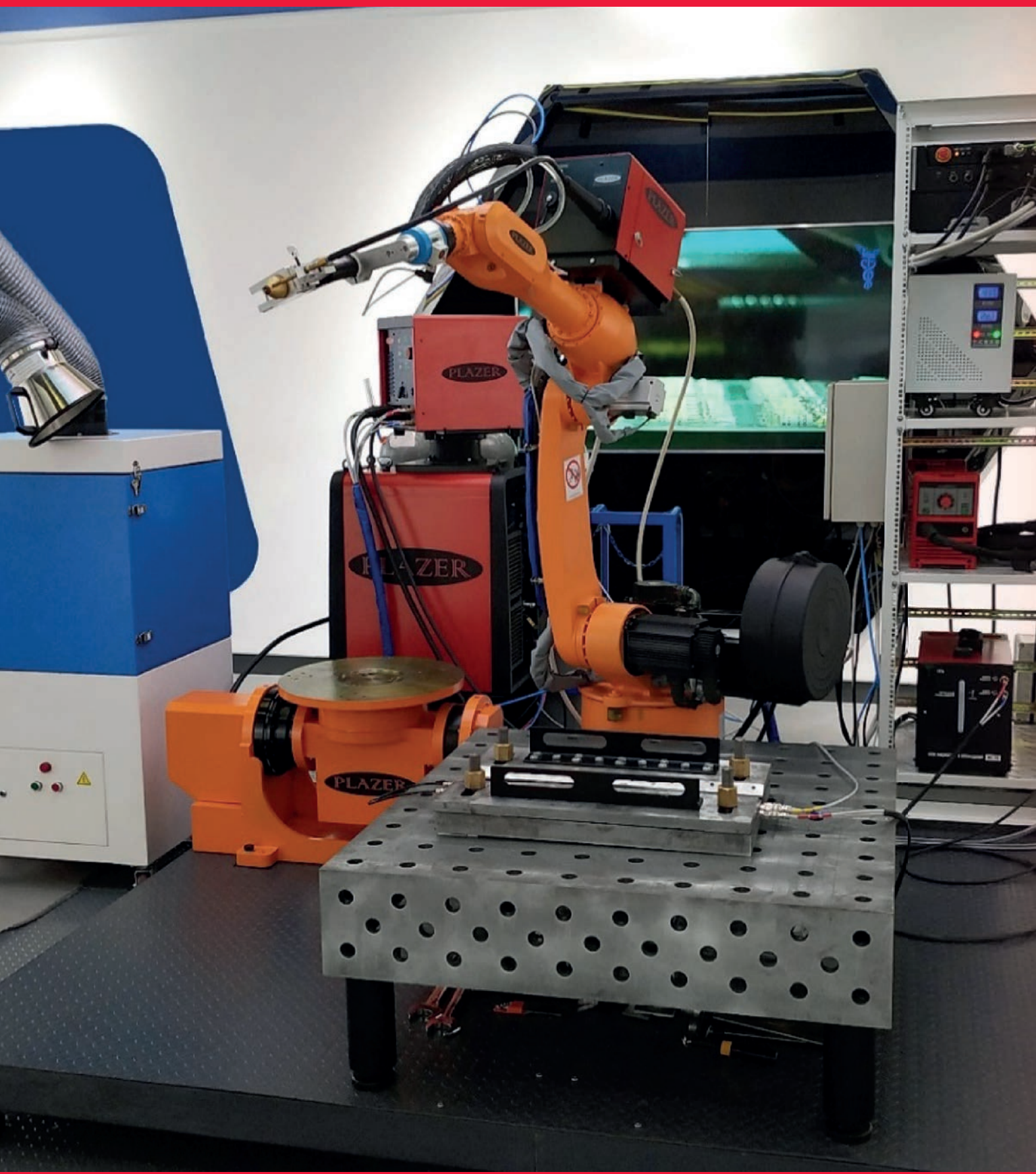
The equipment will always change. Everything keeps up with the development of science. Concord existing between the advanced science, presented by PWI, and modern engineering enterprise, KZESO, give the best results in fulfilment of time requirements, and, certainly, our clients.

As for development of rail welding equipment, it is necessary to note, that machines and complexes of KZESO are already the equipment of future. By the determination of Russian Acad. S. Glaziev, one of the authors of theory of technological setup, «KZESO» rail welding machines fulfil the requirements of the highest 6th technological setup, i.e. being the equipment of XXI century. Use of the elements of artificial intelligence in the recent models of KZESO machines for welding of rails in combination with modern computer equipment and specially developed software allows performing preliminary testing of butt joint, set corresponding mode of welding, follow the welding progress and remove disadvantages, use the algorithms for verification of quality and ultrasonic testing of each butt joint being welded, develop e-passport of welding.

I may definitely say that KZESO is the manufacturer of modern welding machines and complexes, which already use technologies of future that will be still relevant for many years. And we move forward, improve and with confidence in own forces look in the future.

Interview was recorded by
Oleksandr Zelnichenko

MULTIFUNCTIONAL ROBOTIC COMPLEX



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им. Е.О.ПАТОНА

FOR PLASMA-ARC WELDING

Performable technologies:

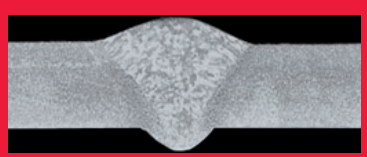
- Pulsed-arc consumable electrode (filler wire) welding
- TIG welding with filler wire feed
- Plasma welding with and without filler wire
- Plasma spot welding with and without filler wire feed
- Welding in «soft plasma» mode with filler wire feed
- Hybrid plasma-MIG consumable electrode welding

Characteristics of welding robot

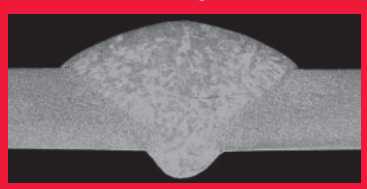
Work area, mm	1420
Number of axes	6
Lifting capacity of the «wrist», kg	10
Lifting capacity of the «elbow», kg	12
Maximum positional repeatability error, mm	0.02
Maximum path error, mm	0.10

Welded joints of aluminium AMg5 alloy

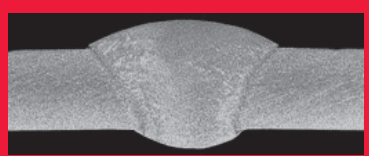
Plasma



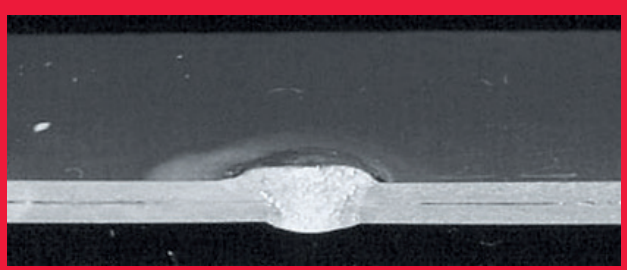
MIG

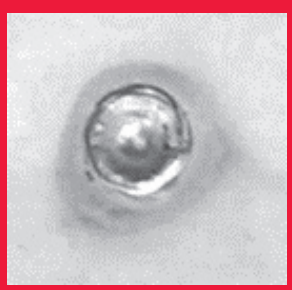


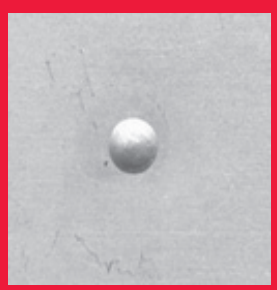
TIG



Seam welding of 4 mm sheets







Plasma spot welding of 1 + 1 mm sheets

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